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THE DEGRADATION OF STEPPE ENVIRONMENTS AND THEIR REFLECTION ON DESERTIFICATION (AREA ZAHREZ)

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ABSTRACT

In this work we did complete technical studies at the level of the territory of Zahrez by imposing on a protection of the region from natural hazards, which are caused due to the deterioration of the natural environment.

To reduce these risks, based on the study of hydrology and geology we have proposed a policy of reforestation "Green Dam" and that because of its importance of the fertility of the soil to reduce the phenomenon of desertification and floods, that consists on fixing the creeping sands and reduce the speed of water flow through soil permeability in order to give full protection to the region from natural hazards.

KEYWORDS: Zahrez, Natural, Desertification, Détérioration and Sands

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Original Article

INTRODUCTION

Land degradation is a problem that affects all regions, not only the drylands and developing countries. About one third of all agricultural land is either highly or moderately degraded. Drylands are more vulnerable to natural and human destruction due to the small water containment in soil Desertification is caused primarily by over-exploitation of natural resources beyond their carrying capacity. Solutions to combat desertification lie in the management of the causes of desertification. However, there are no easy options to combat it. While managing demographic pressure should receive priority, the solutions to combat desertification involve local action, guided by land use and climatic conditions and in harmony with local needs and people's expectations. Drylands are used as rangelands or as croplands, with the latter either irrigated or rainfed. Integrated data on land and soil degradation and on the socio-economic environment within which it occurs are the basis to formulate strategies for reclamation and proper use of drylands

MATERIALS AND METHODS

Study Site

The Zahrez (Zahrez Gharbi et Zahrez Chergui) area is part of Algerian highlands between 2 and 5 East longitude and between 33° and 35° north latitude. It covers a total area of, 114800 ha it is 300 kms from the capital Algiers; it remains one of the steppe regions with a substantial forest heritage. Its geographic location gives it a privileged place within the North-South Algeria relations; it has a combination of forests distributed over a large part of its regional territory. According to the Forests Conservation Department, the total forest area in the region is estimated at 214117 ha, which represents 94.2% of the total land area.

The field of study areas known deterioration

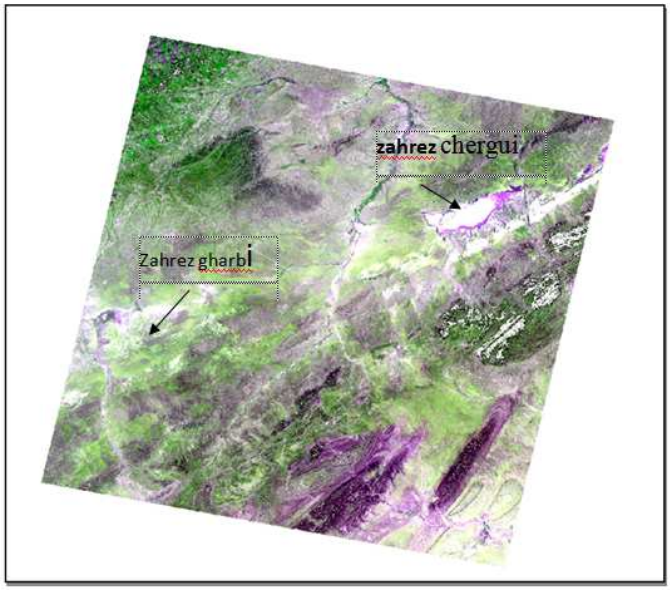


Figure 1: Study Site the Zahrez (Zahrez Gharbi et Zahrez Chergui) Area

Data Used

Spatial data from toposheets consists of a survey of the area, satellite image

A map of the exact location of the study area data details, set out in Table 2.

Table 2: Data details

Father No. type of data source

1. The study area map Development Authority groundwater survey (ANRAH)

2. Clear Toposheets Department of Djelfa

3. Satellite image indsat

4. Soil type

Physical analysis of the sand to see the sand source

Two sites include the western and Zahrez Zahrez CHERGUI

All sites are research stations or

The surface samples from the sandy soil and 6 samples Profile

Sand is a granular substance that occurs naturally and is composed of rock and metal and scattered small molecules. It is defined by size, being more accurate than gravel and roughness of silt. Sand can also refer to the textural class of soil or soil type. Any soil that contains more than 85% sand-sized particles of the cluster. [1]

It consists mainly of silica sand, finely granulated and, depending on their location, it can include various rocks, coral, shell fragments or lava. It is lightweight and easily transported by wind and water. Composition directly affects the color, resulting in a black, white, pink, green coloring**.**

Sand Sources and Transit Routes:

To identify the sources of sand and trends in the field of study and transit areas and accumulation, and this in order to determine the impacts on agricultural and urban areas, and in general the configuration in the environmental content of a private local environment and its impact on sustainable development due to their interdependence with social and local requirements.

RESULTS AND DISCUSSIONS

Sand Grain Size Analysis

0-20 cm and the presence of reddish sands

20 -50 cm and the presence of dark sand structures tend to blackness

50-80 cm and the presence of alluvial sands with a yellowish spots oxidative stress

The age and the form of this is due to water erosion, so we find Lance all material transported and locally rough proportions and shape becomes thinner on contact peels limestone located out of the area.

$$So = \sqrt{\frac{Q_3}{Q_1}}$$

Q1: First spring and is a country that accepts 25%

Q3: the third spring and is the country which corresponds to 75%

And weighing the degree of change by so values:

* 1> So > 1,5: good sort and he expresses the wind.

* 1,5 > So > 2: Sort average and is expressing the water.

* 2 >So > 3: bad sort.

* So > 3: Sort Terrible.

1 Screening Index (Krumbein) Q

Calculated using the following law: Q = Q1 – Q3

2

And Q Valuable changed as follows:

* 0,1> Q >0,2: Sort very good (expresses the wind)

* 0,2> Q > 0,3: good sort (expresses the water)

* Q de >0,3: Sort bad

And can give valuable winds less than 0.1.

2/ sorting index φ Friedman 1961

$$\varphi = \frac{\varphi_{95} - \varphi_5}{66} + \frac{\varphi_{84} - \varphi_{16}}{4}$$

and Valuable changed as follows: Inclusive Graphic Standard Deviation: This formula includes 90% of the distribution and is the best overall measure of sorting. Measurement of sorting values for a large number of sediments has suggested the following verbal classification for sorting for each value of inclusive graphic standard deviation:

phi (f)Size Range

Verbal Description of Sorting

under .35 phi very well sorted

0.35 - 0.50 phi well sorted

0.50 - 0.71 phi moderately well sorted

0.71 - 1.0 phi moderately sorted

1.0 - 2.0 phi poorly sorted

2.0 - 4.0 phi very poorly sorted

Over 4.0 phi extremely poorly sorted

The best sorting attained by natural sediments is about .20-25 phi, and Texas dune and beach sands run about. 25-.35 phi. Texas river sediments so far measured range between .40-2.5 phi, and pipetted flood plain or neritic silts and clays average about 2.0-3.5 phi. The poorest sorted sediments, such as glacial tills, mudflows, etc., have values in the neighborhood of 5 phi to 8 phi or even 10 phi.

*3/**The Average Diameter (*Graphic Mean) *:(Ward & Falk) Mz***

And it is calculated using the following law

$$Mz = \frac{\varphi_{16} - \varphi_{59} + \varphi_{84}}{3}$$

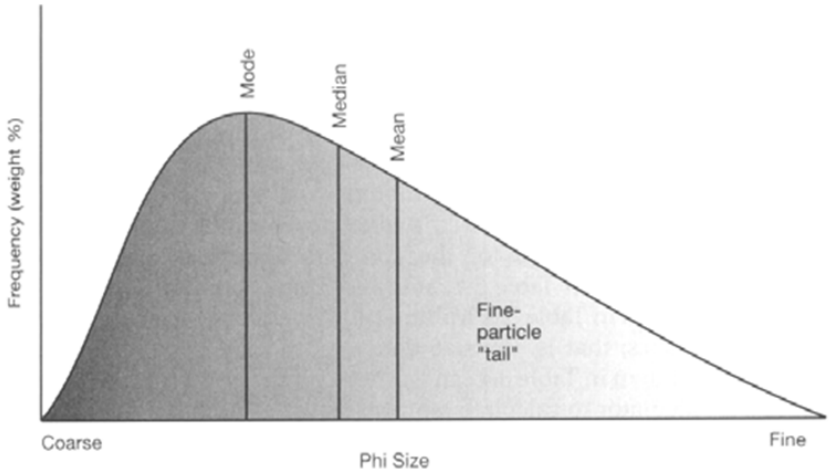
***Sorting: (from Inclusive Graphic Standard Deviation)**

Mz Valuable give the type of sand by country beloved as shown in the following table01:

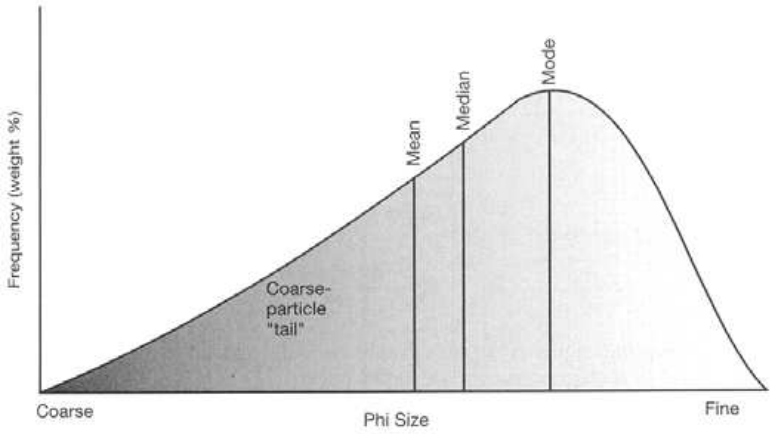
Mz Valuable	Country(mm)	kind of sand
0-1	*1-0.5*	*Coarse sand*
1-2	*0.5-0.25*	*Sand Average*
2-3	*0.25-0.125*	*Sand precise*
3-4	*0.125-0.062*	*Sand very precise*

Sorting Skewness: (from inclusive graphic skewness) Symmetry Index Ski: This indicator shows the extent of deviation Hustowerem sample for diving curve, which shows the deviation Histogram appointed to the minute or coarse elements, and it gives the following of Skewness

from +1.00 to +0.30	strongly fine skewed
from +0.30 to +0.10	fine skewed
from +0.10 to -0.10	near symmetrical
from -0.10 to -0.30	coarse skewed
from -0.30 to -1.00	strongly coarse skewed



B. Negatively (coarse) Skewed



4/Inclusive Graphic Skewness Ski

shows if the distribution is bell shaped or shifted to side

$$Ski = \frac{P_{16}+P_{84}-2P_{50}}{2(P_{84}-P_{16})} + \frac{P_5+P_{95}-2P_{50}}{2(P_{25}-P_5)}$$

5/Sedimentation index K: (Kurtosis) – shows if the distribution is bell shaped, very flat, or very peaked

K value indicates the quality of the deposition

$$K = \frac{Q_{95} - Q_5}{2.44\ (Q_{75} - Q_{25})}$$

Table 2 depositional K values Kurtosis Value (Verbal Description of Kurtosis)

k valuable	Distribution
Under0,67	very platykurtic
0.67-0,9	platykurtic
0.9-1,1	mesokurtic
1.1-1,5	leptokurtic
1.5-3	very leptokurtic
over3	extremely leptokurtic

Table 3: The Results of the Sands of the Analysis of Samples

Type of sample	Taking	K	Mz	Q	Ski	Q de Q	So
Sands Dunes	1	1,02	2,76	0,04	-0.01	0,11	0,65
	2	0,93	2,73	0,07	0,01	0,11	0,76
	3	1,07	2,76	0,88	-0,08	0,33	0,96
Sands of the valley (Almsran)	1	0,91	2,03	0,80	0,056	0,065	1,63
	2	0,85	2,08	0,50	0,02	0,056	0,76
	3	0,69	2,56	0,60	0,08	0,51	0,8

For Samples Sand Dunes(Zahrez Chergui)

So sorting index for the three samples greater than 1 and less than 1.5, and this means that the samples are well sorted screening, and is evidence that the wind is transported factor.

Q de Q values of all of -0.1 and less than 0.1, and this shows that the three samples Hustogramat apply to diving curve, which means that the constituent elements of medium size.

Q values confined to the field of (0.35 to 0.5) and is translated well to sort these samples, and these values give the wind.

Mz greater than 2 and is approaching a lot of 3 values, and are expressing sand exact diameter of between 0.125 mm and 0.25 mm.

For Samples (W Sands of the valley (Almsran) Zahrez Gharbi

Based on the table it can be concluded the following:

Sorting index So 3.2 for samples less than 1.5 is, they are of a good sort, which shows the work of the wind,

The sample 1 index of 1.3, a mean sort semi-good and it means entering another factor is the wind in the transport and it is only water, and especially if we know that the sample taken from the valley bed.

Ski index all samples are located in the field values (-0,1 - 0,1), and this means that these samples Hustogramat apply to diving curve, and it shows that the elements of this medium-sized samples.

Q values show us that the values of the two samples 2-3 incorporated in the sample from 0.5 to 0.71 good sort somewhat, and the largest sample 1 0.7 Average of any sort, these results show us the impact of the wind factor

CONCLUSIONS

From the data, it could be concluded that the physico properties of Very degraded lag behind

* In terms of human intervention:

- to assess serenely the operations to combat desertification that have been carried out in our regions and to draw a critical balance
- ending clearing operations at the expense of the vegetation mat
- firstly inscribe maintenance and rehabilitation of all the existing hydraulic, forest and alfactory infrastructure (irrigation - pruning - prevention of predators, etc.)
- 4/ create a database accessible to all and regularly updated
- emphasizing the participation of local communities in finding solutions, redeploying traditional strategies to overcome periods of crisis, such as drought, and combating the marginalization of rural populations as a result of The importance of cities.
- permanently and responsibly associate all associations linked to the steppe.
- organize regular meetings with partners from other regions and affected or at risk of being affected by the phenomenon of desertification in order to coordinate actions at regional, national and international level.
- create nature reserves at the level of each community or commune in an attempt to restore the flora and fauna
- Region (these reserves will be limited in area and located at well-chosen sites and with all chances of success)
- revising the highland development option in the agro-pastoral sector and focusing efforts on the introduction of fodder crops, especially at the level of the zones developed under the NADP.
- encouraging forage crops to enable the steppe to rest by providing supplementary feeding for herds
- to define a smart and rational policy for afforestation and reforestation
- determine in a scientific manner, using satellite imagery, impacts and sandy areas to be timbered for fixing dunes and windy corridors in the area.
- practices should be followed for improvement of physico-chemical properties to sustain fertility status.

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APPENDICES

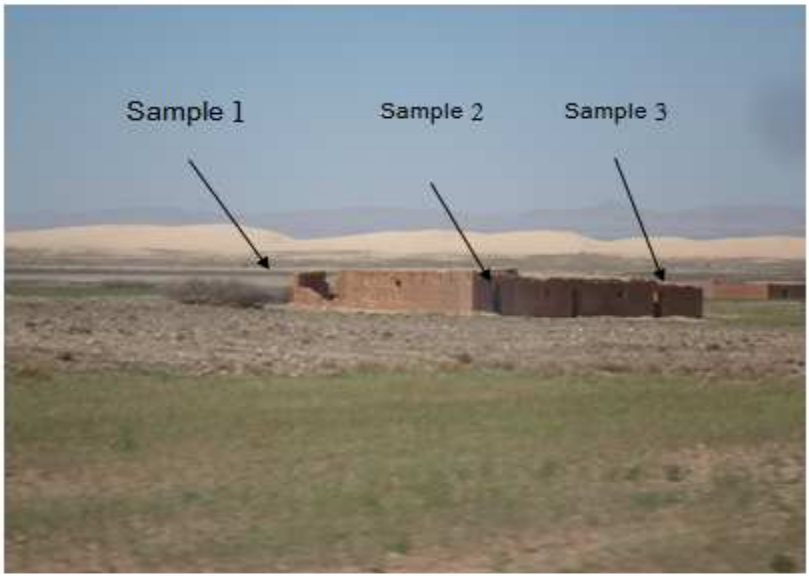

Figure 2: Sand Dunes (Zahrez Chergui)

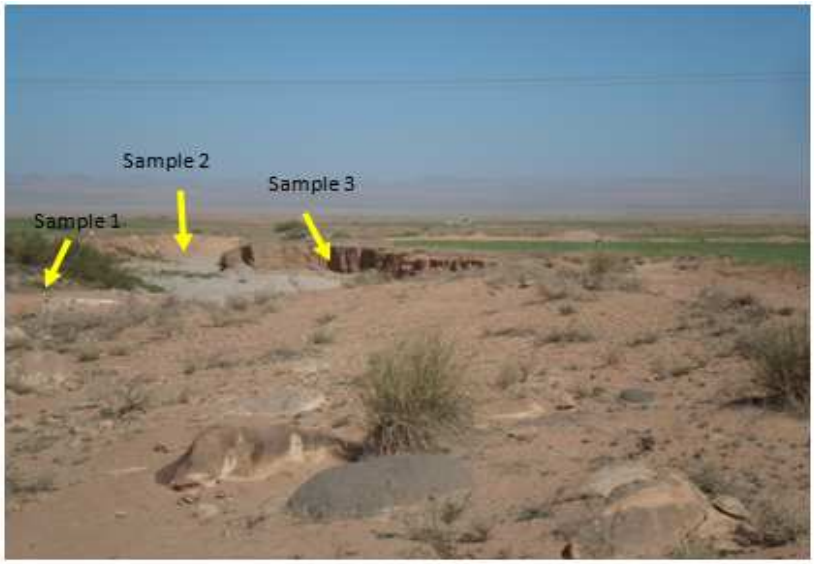

Figure 3: W Sands of the Valley (Almsran) Zahrez Gharbi